

In the Specification:

On page 8, please amend the second full paragraph, starting at line 20 continuing to page 9, line 3 as follows:

MARKED-UP VERSION

Returning to ~~Figure 1, the speech signal 220~~ Figure 2, the speech signal 210 is routed to a rate determination controller module 220 for analyzing the speech signal on frame-by-frame basis. Each frame of speech is analyzed by the rate determination controller 220 in order to select one of the speech encoders 230-250, for the most efficient use of the communication channel 260. As understood by those of ordinary skill in the art, for example, frames of speech are sampled at 10 ms intervals or blocks under the G.729 standard. An analysis of each 10 ms frame of speech, using well-known methods, the rate determination controller 220 may select one of the plurality of speech encoders 230, 240 and 250.

CLEAN VERSION

C/ Returning to Figure 2, the speech signal 210 is routed to a rate determination controller module 220 for analyzing the speech signal on frame-by-frame basis. Each frame of speech is analyzed by the rate determination controller 220 in order to select one of the speech encoders 230-250, for the most efficient use of the communication channel 260. As understood by those of ordinary skill in the art, for example, frames of speech are sampled at 10 ms intervals or blocks under the G.729 standard. An analysis of each 10 ms frame of speech, using well-known methods, the rate determination controller 220 may select one of the plurality of speech encoders 230, 240 and 250.

On page 9, please amend the first full paragraph starting at line 4 as follows:

MARKED-UP VERSION

For example, if the speech signal has the shape or characteristics of a male voice, the rate determination controller 220 may position the encoder selector 212 to select a medium data rate speech encoder, such as the speech encoder 230, G.729 6.4 kbps, to encode that particular frame. For the next frame, however, if the rate determination controller 220 finds a higher quality speech frame, such as music-like speech, the rate determination controller 220 may position the encoder selector ~~215~~212 to select a high data rate encoder, such as the speech encoder 250, G.729 11.2 kbps, to encode that speech frame in order to prevent quality degradation. In one embodiment, the speech encoder 250 of the system 200 may be a G.727 ADPCM 24.0 kbps, in that event, pcsitioning the encoder selector 212 to the speech encoder 250 by the rate determination controller 220 would cause the speech frame be encoded using the G.727 standard.-

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For example, if the speech signal has the shape or characteristics of a male voice, the rate determination controller 220 may position the encoder selector 212 to select a medium data rate speech encoder, such as the speech encoder 230, G.729 6.4 kbps, to encode that particular frame. For the next frame, however, if the rate determination controller 220 finds a higher quality speech frame, such as music-like speech, the rate determination controller 220 may position the encoder selector 212 to select a high data rate encoder, such as the speech encoder 250, G.729 11.2 kbps, to encode that speech frame in order to prevent quality degradation. In one embodiment, the speech encoder 250 of the system 200 may be a G.727 ADPCM 24.0 kbps, in that event, positioning the encoder selector 212 to the speech encoder 250 by the rate determination controller 220 would cause the speech frame be encoded using the G.727 standard.

On page 10, please amend the second full paragraph starting at line 6 as follows:

MARKED-UP VERSION

As described above, speech signal 210 is first routed to the rate determination controller 220 on a frame-by-frame basis. Once the speech signal 210 is routed to ~~one of the~~ rate determination controller 220, a predetermined flag in the header of the speech frame is analyzed to determine classification of the speech frame. For example, the value of the flag in the speech frame may indicate that the speech frame is a non-active speech signal (background noise or silence) and thus is to be processed by a low bit rate encoder. The value of the flag in the speech frame may indicate that the speech frame is an active speech and of high quality, such as music, and is thus to be processed using a high bit rate encoder. In the alternative, ~~T~~the value of the flag in the speech frame may indicate that the speech frame is an active speech but of medium quality, such as male voice, and is thus to be processed using a medium bit rate encoder. Once the encoding scheme is determined, the speech frame is routed to one of the speech encoders 1..n via the encoder selector 212. It is understood that classification of the input speech may be accomplished by any type of control circuit or software, based on a predetermined standard, criterion or set of criteria, or based on system requirements and/or need.

CLEAN VERSION

As described above, speech signal 210 is first routed to the rate determination controller 220 on a frame-by-frame basis. Once the speech signal 210 is routed to the rate determination controller 220, a predetermined flag in the header of the speech frame is analyzed to determine classification of the speech frame. For example, the value of the flag in the speech frame may indicate that the speech frame is a non-active speech signal (background noise or silence) and thus is to be processed by a low bit rate encoder. The value of the flag in the speech frame may indicate that the speech frame is an active speech and of high quality, such as music, and is thus to be processed using a high bit rate encoder. In the alternative, the value of the flag in the speech frame may indicate that the speech frame is an active speech but of medium quality, such as male voice, and is thus to be processed using a medium bit rate encoder. Once the encoding scheme is determined, the speech frame is routed to one of the speech encoders 1..n via the encoder selector 212. It is understood that classification of the input speech may be accomplished by any type of control circuit or software, based on a predetermined standard, criterion or set of criteria, or based on system requirements and/or need.

One page 11, please amend the first full paragraph starting at line 19 and continuing to page 12, line 8 as follows:

MARKED-UP VERSION

Figure 4 illustrates another embodiment of the present invention. As shown, the speech encoding system 400 includes a network controller 430, a rate determination controller 420 and a plurality of speech encoders 1..n, denoted 440, 450, 460, 470 and 480, respectively, for transmitting speech signal 410 over a communication channel ~~460~~ 490. According to this embodiment, the network controller 430 may select one of a plurality of groups of speech encoders for encoding the speech signal 410. The network controller 430 may route the speech signal 410 either through line 412 or 414 according to predetermined factors of the network provider. As shown, line 412 routes the speech signal 410 to a first group of encoders, including speech encoders 440, 460 and 480. Line 414, on the other hand, routes the speech signal 410 to a second group of speech encoders, including speech encoders, 440, 450, 460, 470 and 480. In one embodiment, the speech encoders 440, 450, 460, 470 and 480 may support different data rates of G.729 Annex I, 0, 1.5, 6.0, 8.0 and 11.2 kbps, respectively. In another embodiment, the speech encoder 440 may support 0 kbps data rate of the G.729 Annex I standard, the speech encoder 450 may support 5.3 kbps of the G.723.1 standard, the speech encoder 460 may support 8.0 kbps data rate of the G.729 Annex I standard, the speech encoder 470 may support 16.0 kbps data rate of the G.728 standard and the speech encoder 480 may support 64.0 kbps data rate of the G.711 standard. In short, various data rates of different standards may be combined and supported accordingly.

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Figure 4 illustrates another embodiment of the present invention. As shown, the speech encoding system 400 includes a network controller 430, a rate determination controller 420 and a plurality of speech encoders 1..n, denoted 440, 450, 460, 470 and 480, respectively, for transmitting speech signal 410 over a communication channel 490. According to this embodiment, the network controller 430 may select one of a plurality of groups of speech encoders for encoding the speech signal 410. The network controller 430 may route the speech signal 410 either through line 412 or 414 according to predetermined factors of the network provider. As shown, line 412 routes the speech signal 410 to a first group of encoders, including speech encoders 440, 460 and 480. Line 414, on the other hand, routes the speech signal 410 to a second group of speech encoders, including speech encoders, 440, 450, 460, 470 and 480. In one embodiment, the speech encoders 440, 450, 460, 470 and 480 may support different data rates of G.729 Annex I, 0, 1.5, 6.0, 8.0 and 11.2 kbps, respectively. In another embodiment, the speech encoder 440 may support 0 kbps data rate of the G.729 Annex I standard, the speech encoder 450 may support 5.3 kbps of the G.723.1 standard, the speech encoder 460 may support 8.0 kbps data rate of the G.729 Annex I standard, the speech encoder 470 may support 16.0 kbps data rate of the G.728 standard and the speech encoder 480 may support 64.0 kbps data rate of the G.711 standard. In short, various data rates of different standards may be combined and supported accordingly.

On page 12, please amend the first full paragraph starting at line 16 as follows:

MARKED-UP VERSION

Just as explained above in relation to the embodiment of Figure 2, the rate determination controller 420 may route each frame of the speech signal 410 using encoder selectors 413 and 415 to one of plurality of the speech encoders according to characteristics of each speech frame. However, the network controller 430 may designate a specific group of speech encoders that may be utilized by the rate determination controller 420. For example, during certain hours of the day, the network controller 430 may route the speech signal through the line 412 to the encoder selector 413 which provides less number of speech encoders to choose from for use by the rate determination controller 420.

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Just as explained above in relation to the embodiment of Figure 2, the rate determination controller 420 may route each frame of the speech signal 410 using encoder selectors 413 and 415 to one of plurality of the speech encoders according to characteristics of each speech frame. However, the network controller 430 may designate a specific group of speech encoders that may be utilized by the rate determination controller 420. For example, during certain hours of the day, the network controller 430 may route the speech signal through the line 412 to the encoder selector 413 which provides less number of speech encoders to choose from for use by the rate determination controller 420.